TABLE 1. Gemological properties of corundum from the Snezhnoe deposit compared with previous studies.

Property	Ruby and sapphire from micaceous lenses	Marble-hosted ruby	Ruby (Henn and Bank, 1990)	Ruby and sapphire (Smith, 1998)
Color	Purple, light pink, and dark red	Bright red with a slightly purple hue	Reddish, red, and violet-red	Purplish pink to purplish red
Transparency	Often translucent, rarely transparent	Often transparent	Transparent	Highly transparent
Quality	Cabochon-quality, rarely suitable for cutting	Gem-quality	Gem-quality	Gem-quality
Pleochroism	Weak to moderate dichroism Parallel to c-axis: orange-red Perpendicular to c-axis: reddish violet	Strong dichroism	Weak dichroism; e—reddish to light red and o—red to violet red	Moderate to strong dichroism Parallel to c-axis: pinkish/reddish-orange to red-orange Perpendicular to c-axis: purple-pink to purple-red
Refractive index	n_e = 1.762–1.764, n_o = 1.772–1.774		n_e = 1.761–1.762, n_o = 1.769–1.770	n_e = 1.761–1.762, n_o = 1.770
Birefringence	0.008–0.009		0.008	0.008–0.009
Density (g/cm^3)	3.99–4.01		3.98	3.99–4.02
Reaction to long- and short-wave ultraviolet radiation	LW—strongly red; SW—red, weak		LW—strongly red; SW—red	LW—strong to very strong, slightly orange-red to red; SW—very weak to medium red
Photoluminescence spectra	Doublet R-lines at 692 and 694 nm from single Cr^{3+} and N lines from Cr^{3+} pairs in long-wave part of spectra			
Absorption (reflectance) spectra	Wide bands at about 410 and 555 nm from Cr^{3+}; luminescence line at 694 nm from Cr^{3+}		Perpendicular to c-axis: 555 and 404 nm Parallel to c-axis: 547 and 400 nm of Cr^{3+}, lines at 693 nm from Cr^{3+}	Wide bands at about 405 and 550 nm from Cr^{3+}; weak bands at about 468, 475, 476, 659, 692, and 694 nm
Internal features	Parting and twinning. Solid inclusions of allanite, rutile, zircon, soda margarite (calcic ephesite), muscovite, fuchsite, K-feldspar, and Ca-Na-plagioclase.		Twinning, healing cracks, fluid inclusions, rutile, and growth striae	Growth structures, color zoning, twinning, negative crystals, and solid inclusions of calcite, titanite, zircon, rutile, and plagioclase
Trace elements (wt.%)	See table 5		Cr_2O_3 (0.20), FeO (0.08), and TiO_2 (0.01)	Cr_2O_3 (0.185–0.516), TiO_2 (0.017–0.156), Fe_2O_3 (0.004–0.018), V_2O_5 (0.015–0.025), Ga_2O_3 (0.010–0.014)